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Contribution from the Bureau of Entomology, L. O. Howard, Chief.

CUTWORMS AND THEIR CONTROL IN CORN AND OTHER CEREAL CROPS.

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By W. R. WALTON and J. J. DAVIS,

Entomological Assistants, Cereal and Forage Insect Investigations.

IMPORTANCE AND NATURE OF CUTWORM INJURY.

Numerous complaints of the ravages of cutworms, especially in relation to corn, are received each season by the department. Prompt action is necessary for controlling cutworms after their presence becomes noticeable in the spring, which is usually about the time the corn begins to sprout. Because of the fact that the delay necessary between the time the worms make their appearance and the time a reply can be received from the department is often disastrous to the crop, the importance of recognizing these insects and knowing how to control them is evident.

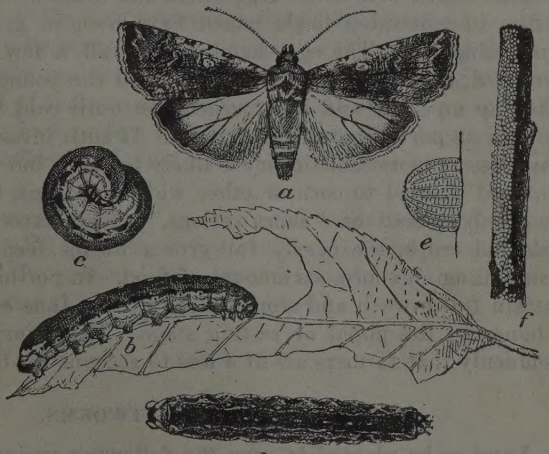

FIG. 1.—Variegated cutworm (*Peridroma margaritosa*): *a*, Moth; *b*, normal form of caterpillar, side view; *c*, same in curved position; *d*, dark form, view of back; *e*, greatly enlarged egg, seen from side; *f*, egg mass on twig. (From Howard.)

Cutworm injury almost invariably occurs in the spring, the plants usually being cut off at the surface, or a little below the surface, of the ground, beginning as soon as the first plants sprout and continuing until late June or early July, by which time the worms are full grown. Feeding takes place at night, the worms resting during the day beneath débris or in the soil at a depth of from one-half to 1 inch below the surface, and since they closely resemble the color of the soil in most cases, the cause of the injury is often not apparent. However, if the soil surrounding the cut-off plant be examined carefully, the culprit will quite likely be found curled up in the soil as illustrated (fig. 1, *c*).

LIFE HISTORY OF CUTWORMS.

The various cutworms are known under a number of popular names, such as the glassy cutworm, greasy cutworm, variegated cutworm, clay-backed cutworm, etc., but the injuries caused by them are very similar and their habits in general are also much the same. The parents of cutworms are grayish or brownish moths or "millers," which commonly occur at lights during summer evenings. Each moth may lay from 200 to 500 eggs, either in masses or singly, in fields covered with dense vegetation, and hence are to be found more often in cultivated fields which have been in grass or weeds the preceding fall. The eggs hatch in the fall, a few weeks after they are laid, usually during September, and the young cutworms, after feeding on grass and other vegetation until cold weather, pass the winter as partly grown caterpillars. If such infested fields are left to grass, no noticeable injury is likely to occur, but when it is broken up and planted to corn or other wide-row crops, the worms, being suddenly placed on "short rations," wreak havoc with the newly planted crops, the nearly full-grown worms feeding greedily and consuming an enormous amount of food. In northern latitudes they attain full growth and stop feeding in late June or early July, and change to the pupal or resting stage. The injury often ceases so suddenly that farmers are at a loss to account for the fact.

CONTROL OF CUTWORMS.

Land to be planted to corn the following spring, especially such land as has laid in grass for a considerable time and is likely to contain cutworms, should be plowed in midsummer or early fall about the time the eggs are laid, or better, before the eggs are laid, for then vegetation which is suitable for the moths to lay their eggs upon is removed. The earlier the preceding year grasslands to be planted to corn are plowed, the less will be the probability that the

cutworm moths will have laid their eggs thereon, and the less, consequently, will be the danger of injury by cutworms the following year.

Late fall and winter plowing of grasslands, although not as effective as early plowing, will destroy many of the hibernating cutworms, as well as such other important corn pests as white grubs, and should be practiced when earlier plowing is impracticable.

Pasturing hogs upon land supposed to harbor cutworms is a beneficial practice, as these animals root up and devour insects of many kinds, including cutworms, in large numbers. Farm poultry, if trained to follow the plow, will prove of inestimable value.

When cutworms are found to be abundant on corn land, the use of the poisoned bait is recommended. This may be prepared as follows: Mix 50 pounds of wheat bran, 2 pounds of Paris green, and 6 finely chopped oranges or lemons. Then bring the whole mixture to the consistency of a stiff dough by the addition of a low-grade molasses, such as is used in cattle rations, adding water when necessary. Distribute this bait over the infected field in small lumps, taking care to sprinkle it sparingly around each hill. In case bran can not be readily obtained, middlings or alfalfa meal may be successfully substituted. In fields known to be infested, the distribution of this bait should be started as soon as the corn begins to appear above ground so that the cutworms may be eliminated as quickly as possible and the injured hills promptly replanted. During the warmer spring months cutworms do most of their feeding at night and burrow into the soil to the depth of an inch or two during the day, so that the bait will usually be more effective if applied during the late afternoon or early evening hours.

Frequently cutworms migrate to cultivated fields from adjoining grassland, and in such cases the crops can be protected by running a narrow band of the poisoned bait around the edge of the field or along the side nearest the source of infestation.

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